

ABSTRACT

The present invention provides a PLL circuit, which can make convergence at a high speed and convert an IF signal into an RF signal, and a wireless mobile station with that PLL  
5 circuit.

An LPF charging constant current source, a discharging constant current source and a high-speed charging constant current source are connected to an output terminal of a phase comparator with current mode output of the PLL circuit. By  
10 doing so, in the case where a convergence frequency of the PLL circuit is low, an input voltage of a VCO is increased from 0V so as to be converged by using the constant current source. Meanwhile, in the case where the convergence frequency of the PLL circuit is high, the input voltage of the PLL circuit is  
15 temporarily increased to the maximum voltage by using the constant current source. Thereafter, the input voltage is gradually dropped from the maximum voltage so as to be converged by using the constant current source. Thus, the above operation is selected by the convergence frequency, and thereby,  
20 it is possible to shorten the maximum convergence time of the PLL circuit.